ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5 - 29.5 GHz Frequency Band, to Reallocate the 29.5 - 30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services	)	CC Docket No. 92-297

OPPOSITION OF HUGHES COMMUNICATIONS GALAXY, INC. TO PETITION FOR RECONSIDERATION AND COMMENTS ON PETITION FOR CLARIFICATION

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OPPOSITION OF HUGHES COMMUNICATIONS GALAXY, INC. TO PETITION FOR RECONSIDERATION AND COMMENTS ON PETITION FOR CLARIFICATION

Hughes Communications Galaxy, Inc. ("Hughes") hereby submits (i) its firm opposition to the Petition for Partial Reconsideration filed by Motorola Satellite Communications, Inc. ("Motorola") in this proceeding and (ii) its comments on TRW Inc.'s Petition for Clarification of the First Report and Order in this proceeding.

Motorola's Petition must be rejected because it puts the whole 28 GHz band plan in jeopardy. Motorola's Petition is an unprecedented and unconscionable withdrawal of support for an industry-wide consensus band plan that Motorola endorsed in writing on June 3, 1996, six weeks before the First Report and Order here was issued.[1]

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[1] See Letter from Cellular Vision USA, Inc., AT&T, Hughes, Teledesic Corporation, Motorola, the University of Texas--Pan American, Phillips Electronics, Titan Information Systems, CellularVision of New York, L.P., M/A COM, Inc., RioVision of Texas, Inc., International CellularVision Association, CellularVision Technology and Telecommunications, L.P. and GE American Communications, Inc. to the FCC, CC Docket No. 92-297 (filed June 3, 1996) (the "Industry Letter"); Letter from Hughes, AT&T, GE American Communications, Inc., and Motorola to the FCC, CC Docket No. 92-297 (filed June 6, 1996).

Essentially, Motorola is trying to come back to the negotiating table for more spectrum while everyone else is living up to the deal that has been struck. By its sudden about-face, Motorola seeks to relitigate an issue that the Commission has definitively addressed and it presents no reasons that warrant reconsideration. Motorola conveniently ignores the record evidence that firmly supports the Commission's balanced decision and it provides no excuse for its gross tardiness in objecting to terms that were discussed in settlement meetings in which Motorola actively participated.

There is nothing new presented here: these issues have been litigated *ad nauseum*. All affected parties need finality in this proceeding. The Commission therefore should swiftly and summarily dismiss Motorola's Petition and commence licensing the various proposed systems in the 28 GHz band so that service to the public may commence promptly.

I. Introduction and Summary

The band plan adopted in the First Report and Order is a culmination of more than three years of Commission and industry efforts. No one is entirely satisfied by the band plan, yet all proposed services in the 28 GHz band are able to proceed on reasonable terms as soon as the Commission issues licenses. Significantly, Motorola is the only party to ask the Commission to reconsider any aspect that relates to the basic 28 GHz band segmentation plan to which everyone agreed. There is no LMDS opposition, no GSO FSS opposition and no NGSO FSS opposition to this band plan. While all other industries would like more spectrum, they have accepted the Commission's resolution here. Motorola's Petition is a lonely, desperate, final stab at securing more spectrum for its satellite system at the expense of others

and in a manner that will ***preclude*** the business plans of many others.[2] Motorola's proposed alternative---that the 29.25-29.5 GHz band be made available on a first-come-first-served basis to Iridium---was rejected as unworkable because ***Motorola for years has steadfastly refused to share that spectrum with the GSO FSS***. Yet Motorola provides not the slightest scintilla of evidence why it now thinks it can share with the GSO FSS. Motorola's Petition should be rejected because it threatens the very foundation of the carefully crafted compromise that the Commission has adopted in this proceeding.

In order to reach the careful balance present in the 28 GHz band plan, the GSO FSS industry and the NGSO MSS industry had to come to agreement on suitable terms by which they could coexist at 28 GHz. The Commission originally proposed a "first-come, first-served" solution, but, as Hughes, TRW and other GSO FSS interests unequivocally demonstrated, that solution provided no basis for equitable access to the band by multiple satellite systems.[3] A "first-come" approach would have (i) allowed Motorola, which has had a head start over GSO FSS systems in the licensing process,[4] to grab as much spectrum as possible, (ii) removed any incentive for Motorola to share with any other satellite system (whether a GSO FSS system or Odyssey), and (iii) thereby precluded use of the same

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2 Motorola has repeatedly acknowledged that it needs only 100 MHz of spectrum in any one geographic area, with the remainder included for anticipated terrestrial coordination. See TRW Ex Parte Submission, Docket No. 92-297 (filed Feb. 8, 1996).

3 Comments of Hughes, CC Docket No. 92-297 (filed Sept. 7, 1996) at 11-18; Comments of GE American Communications, Inc. CC Docket No. 92-297 (filed Sept. 7, 1996); Comments of TRW, Inc., CC Docket No. 92-297 (filed Sept. 7, 1996) at 18.

4 See Petition to Deny of Hughes, In the Matter of Motorola Satellite Communications, Inc., Application for License Modifications and Technical Waivers, File No. 85-SAT-ML-96, at 2 n.3 (filed April 19, 1996).

frequencies in almost every state west of the Mississippi by the 13 GSO FSS systems currently proposed before the Commission. Exhibit A, previously submitted in this proceeding, graphically depicts the magnitude of these zones where GSOs could be excluded by Iridium.[5] As a result, the Commission has rejected the "first-come" approach.

For months after the Third Notice issued in this proceeding, NGSO MSS and GSO FSS interests considered and rejected numerous sharing arrangements. Motorola steadfastly insisted that it could not share with any of the dozen GSO FSS systems that had been proposed.[6] The FCC called a series of meetings to try to bring closure to these sharing issues, and Motorola actively participated in those meetings.[7] As a result of those meetings

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5 See Comments of Hughes, CC Docket No. 92-297 (filed Sept. 7, 1996) at 14-15. The use of the 28 GHz band by Iridium feeder links will result in large geographic "exclusion zones" where, in order to avoid interference, GSO FSS earth stations would not be allowed to operate. Based on data provided by NGSO MSS proponents, Hughes has calculated that a single Iridium feeder link complex at Chandler, Arizona would create an exclusion zone about *2600 miles* in diameter that would encompass almost all of the states west of the Mississippi. The implementation of Iridium feeder link sites in other parts of the world would likely result in additional similar exclusion zones.

6 The record in both this proceeding and Hughes's GALAXY/SPACEWAY application proceeding are replete agreements and analyses that that Motorola cannot share the 29.1-29.3 or 19.4-19.6 GHz band with any GSO FSS system. See, e.g., June 5, 1996 ex parte presentation in CC Docket No. 92-297 by Hughes, AT&T, GE American and Motorola; see also materials distributed by the FCC at February 16, 1996 status conference in CC Docket No. 92-297 (no band sharing between Iridium and the GSO FSS; sharing principles agreed between Odyssey and the GSO FSS); Comments of Hughes Communications Galaxy, Inc., CC Docket No. 92-297 (September 7, 1995) at 11-18; Reply Comments of Hughes Communications Galaxy, Inc., CC Docket No. 92-297 (October 10, 1995); Consolidated Comments and Petition to Deny of Motorola Satellite Communications, Inc., File No. 174-181-SAT-P/LA-95 et al. (December 15, 1995); Motorola's Consolidated Reply, File No. 174-181-SAT-P/LA-95 et al. (February 7, 1996); Joint Comments of Motorola Satellite Communications, Inc. and IRIDIUM, Inc., CC Docket No. 92-297 (September 7, 1995); Joint Reply Comments of Motorola Satellite Communications, Inc. and IRIDIUM, Inc., CC Docket No. 92-297 (October 10, 1995). Motorola has even opposed the proposed use of the 29.25-29.3 GHz band by Lockheed and the 29.1-29.3 GHz band by Morning Star, in each case for "limited Gateway services." See Motorola's Consolidated Reply, File No. 174-181-SAT-P/LA-95 et al. (February 7, 1996) at 12, n.27.

7 See FCC Ex Parte Presentation, CC Docket No. 92-297 (filed Jan. 19, 1996); FCC Ex Parte Presentation, CC Docket No. 92-297 (filed Feb. 5, 1996); FCC Ex Parte Presentation, CC Docket No. 92-297 (filed Feb. 16, 1996).

and Motorola's unwillingness to share, the following solution was reached: the NGSO MSS feeder link band would be separated into two parts: (i) one part for NGSO MSS system types that are not able to share with the GSO FSS (like Iridium), and (ii) one part for NGSO MSS system types that can share with the GSO FSS (like Odyssey). In addition, in order provide a framework for sharing, certain conditions were agreed to that are intended to minimize or regularize events of interference so affected parties are able to make appropriate adjustments to their systems. The parties who developed these criteria supplemented the record with additional analyses of the terms and conditions under which this solution was feasible.[8] Significantly, this was the only viable solution that allowed all proposed GSO FSS and NGSO MSS systems to proceed at this time on their own terms

Finally, in June 1996, most of the parties to this proceeding, including Motorola, endorsed in writing the band plan from the Third Report and Order, "***as supplemented by the interservice sharing rules that have been agreed to subsequently.***"[9] The Commission faithfully reflected the terms of this industry-wide solution in the rules it adopted. These conditions included the use of repeating ground tracks by the NGSO MSS systems, as reflected in 25.258 of the rules adopted by the Commission here.

Now, inexplicably, after having stayed silent during the formative negotiations and after having failed to respond to the ex parte submissions that supported this solution,

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[8] See Hughes Ex Parte Presentation, CC Docket No. 92-297 (filed Feb. 6, 1996); TRW Ex Parte Presentation, CC Docket No. 92-297 (filed June 3, 1996); GE American Communications, Inc. Ex Parte Presentation, CC Docket No. 92-297 (filed Feb. 8, 1996); Hughes Ex Parte Presentation, CC Docket No. 92-297 (filed Feb. 26, 1996); FCC Ex Parte Presentation, CC Docket No. 92-297 (filed Jan. 19, 1996); FCC Ex Parte Presentation, CC Docket No. 92-297 (filed Feb. 5, 1996).

[9] See Industry Letter, supra note 1 (emphasis added).

Motorola challenges this compromise. Clearly, by its silence, Motorola has waived any equitable rights it may have had to object. Significantly, Motorola does not offer any concrete, feasible alternative to the sharing rules the Commission has adopted, nor can it. The solution adopted by the Commission is the only viable solution identified in three years. Thus, there is no reason for the Commission to consider this tardy challenge by Motorola.

II. The Commission's Sharing Solution Is Well-Supported By The Record

As noted above, the NGSO MSS/GSO FSS sharing solution adopted by the Commission is well supported by the record and was endorsed in writing by most of the participants in this proceeding, including Motorola.

Motorola's claim that the Commission's solution is only a two-party solution is a gross distortion of the facts. The Commission's solution accommodates a wide variety of satellite systems currently proposed before the Commission, including all of the 13 different GSO FSS systems for which applications now are pending. It also leaves the door open to sharing with additional NGSO MSS systems that have not yet been proposed. As noted above, due to Motorola's unwillingness to share the spectrum with any GSO system, the Commission has separated the NGSO MSS feeder link band into parts: (i) one part for system types that are not able to share with the GSO FSS (like the Iridium system), and (ii) one part for system types that can share with the GSO FSS (like the Odyssey system). The system works for Odyssey and also will work for other systems that may be proposed in the future, as long as

those systems include in their architecture design elements that make them susceptible to sharing.[10]

Motorola would have the Commission believe that that the Staff have dreamed up a sharing rule out of thin air and have foisted it on an unsuspecting Motorola. Nothing could be further from the truth.[11] The use of repeating ground tracks was an essential element to the band plan solution agreed upon here and was one of the factors that convinced a skeptical GSO FSS industry that coordination could work with certain classes of NGSO MSS systems. TRW first emphasized the interference reduction benefits of repeating ground tracks

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[10] For example, the Mid Earth Orbit (MEO) class of satellite system is inherently more susceptible to sharing because it (i) typically requires fewer satellites for global coverage, and (ii) presents fewer interference events for GSO systems. See Hughes Ex Parte Presentation, CC Docket 92-297 (filed Feb. 6, 1996). Motorola has selected a system configuration that prevents sharing with the GSO FSS, and it has no one but itself to blame. Hughes has suggested design elements that Motorola could incorporate in its system to facilitate sharing, but Motorola has refused to consider them on a number of grounds, including the fact that its system is too far along in the design phase. Comments of Hughes, CC Docket No. 92-297 (filed Sept. 7, 1996) at 17-18.

[11] Contrary to the assertion made by Motorola in its Petition that the "Commission's Notice of Proposed Rulemaking did not discuss either the terms or substance of a 'nodal regression' requirement as required by . . . the Administrative Procedure Act," the Commission validly adopted the policy articulated in the First Report and Order by affording adequate notice of, and the opportunity to comment on, of its sharing proposal. Motorola Petition for Partial Reconsideration at 3, n. 4. The Administrative Procedure Act ("APA") requires that a notice include "either the terms or substance of the proposed rule or a description of the subjects and issues involved." 5 U.S.C. Sec. 533(b)(3) (1995). The Commission clearly met this standard in the instant proceeding because it appraised the public of the possibility of regulatory changes of the general type that it ultimately adopted, and despite Motorola's erroneous conclusion, the nodal regression requirement is a "logical outgrowth" of the Commission's stated intention to impose a spectrum sharing plan. See South Terminal Corp. v. EPA, 504 F.2d 646, 659 (1st Cir. 1974) (upholding rule although "EPA added features and dropped others because notice fairly appraised public of possibility of changes"); see also Fertilizer Institute v. EPA, 935 F.2d 1303, 1311 (D.C. Cir. 1991) (holding that agency may issue rule that does not coincide precisely with proposed rule if final rule is logical outgrowth); Natural Resources Defense Council v. Thomas, 838 F.2d 1242 (D.C. Cir. 1988) (holding that rule valid if "germ" of outcome was within original proposal). Specifically, in its Second Notice, the Commission asked, "[w]hat technical rules should be adopted for the Local Multipoint Distribution Service and/or the fixed satellite service so as to maximize the sharing of the spectrum among these services?" Second Notice of Proposed Rulemaking CC Docket No. 92-297 at para. 46. By so stating, the Commission appraised the public of the fact that there was not enough spectrum for all potential users and that some form of sharing would likely be required, including the development of technical rules to guide that sharing.

in its September 7, 1995 comments in this proceeding.[12] This requirement was discussed at the January 19 and February 5 status conferences that the Commission convened for the very purpose of discussing sharing between the GSO FSS and NGSO FSS.[13] Motorola was present at those meetings and never voiced any opposition.[14] In fact, Hughes confirmed the need for this requirement in its February 6, 1996 letter clarifying its sharing solution with the NGSO MSS---the very letter that Motorola cites in its pleading.[15]

The use of repeating ground tracks in the Odyssey system is critical to the solution here because it renders a large number of GSO orbital locations effectively pre-coordinated. As TRW has stated, no significant interference issues exist with respect to a significant percentage of the GSO orbital locations because they do not receive interference "hits" from Odyssey, and many of the intersections of that NGSO system with GSO satellites occur over the ocean, where the likelihood of a problem is minimal.[16]

Thus, Motorola is simply wrong when it claims that "written ex parte documents in the record from Hughes and TRW do not propose or suggest that a rule be

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12 Comments of TRW, Inc., CC Docket No. 92-297 (filed September 7, 1996) at 25.

13 See, e.g., Co-Directional Frequency Sharing Between Odyssey Feeder Links and GSO/FSS Service Links, at 5, (distributed at February 5, 1996 status meeting and contained in FCC Ex Parte Submission of February 6, 1996) (coordination aided by modification to Odyssey satellite phasing); Memorandum from TRW Counsel dated January 16, 1996 (contained in FCC Ex Parte Submission of January 22, 1996) ("TRW Memo"), CC Docket No. 92-297 at 3 (describing repeating ground tracks as mitigation measure).

14 Motorola's comment that "Motorola assumes that the genesis of this requirement came from ex parte communications by TRW and Hughes" therefore is disingenuous at best. Motorola Petition at 3, n.4.

15 See Hughes Ex Parte Presentation, CC Docket No. 92-297 (filed Feb. 6, 1996) (sharing possible with Odyssey due to relatively few spacecraft of Odyssey system and the fact that TRW uses predictable, repeating ground tracks; Iridium architecture does not include elements that make this method of sharing applicable; sharing solution based on premise there is no spectrum overlap between Iridium and GSO FSS).

16 TRW Memo at 3.

adopted or that the Commission should consider requiring repeating ground tracks in the band.[17] The record is very clear that the use of repeating ground tracks is an important tool that provides predictability with respect to NGSO MSS interference events and allows a GSO FSS operator to avoid interference, or predict with certainty when and where the interference will occur.[18]

While repeating ground tracks cannot solve the problems created by the Iridium system architecture (which creates a chronic interference problem), they are a very attractive interference mitigation technique for NGSO systems that are designed for sharing. That is precisely why the NGSO MSS band has been split into two: NGSO systems with chronic interference problems can use only use one half, and those that can be coordinated can also use the other half. Stated differently, there are systems, like Iridium, where is does not matter how you phase the orbits of the satellites---no matter what you do you always will have a significant interference problem. It obviously is not possible for every set of sharing criteria adopted in this proceeding to solve every problem. The fact that repeating ground tracks do not solve the Iridium problem does not take away from the benefit of using them to mitigate interference with other systems. Motorola's proposal to eliminate this criteria for NGSO MSS/GSO FSS sharing because it does not work for Motorola makes no more sense than

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17 Motorola Petition at 3, n.4.

18 Repeating ground tracks are one of the necessary elements to the NGSO/GSO sharing solution reached here. No party has ever said they are sufficient in themselves or that they work if the NGSO system is otherwise designed with non-sharing friendly architectural elements. Contrary to Motorola's suggestions, the 1995 CPM report supports Hughes contention that repeating ground tracks are an important element of sharing with certain NGSO systems. The parties proposed and rejected various other possible means of avoiding interference; the Commission appropriately adopted this as the only mutually acceptable technique.

rejecting the Motorola/LMDS sharing rules because they do not facilitate sharing between the GSO FSS and LMDS.

In sum, Motorola's unwillingness to share spectrum with other systems is a matter of Motorola's own doing and results from Motorola's failure to include architectural elements that make sharing possible.[19] Motorola cannot be allowed to design a system that does not share, and the complain that it is not allowed to use every megahertz of spectrum that it originally sought.

III. The Commission's Solution Facilitates Co-Primary Use of the Band

Motorola's argument that the Commission's sharing rule could become a "worldwide standard, reducing NGSO MSS systems to de facto secondary status" is both hyperbole and a non-sequitur. Nothing in this rule makes a NGSO system secondary. To the contrary, it ensures that both GSO and NGSO systems enjoy equitable access to the spectrum, and that the Odyssey, as one specific example, will enjoy full co-primary status. It is Motorola's gluttonous Iridium system and its hollow "first come-first served" attempt at grabbing more spectrum that ***threatens to render GSO FSS systems secondary***.[20] TRW has also recognized the need for some type of sharing criteria to ensure equitable spectrum access.[21]

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19 See Hughes Ex Parte Presentation, CC Docket No. 92-297 (filed Feb. 6, 1996) at 2-3; see also GE American Communications, Inc. Ex Parte Presentation, CC Docket 92-297 (filed Feb. 8, 1996); Ex Parte Presentation of Hughes, CC Docket 92-297 (filed Feb. 21, 1996), at 5.

20 See supra n.6.

21 Comments of TRW, Inc., CC Docket 92-297 (filed Sept. 7, 1996) at 23-25. It simply is irrelevant to this Petition for Reconsideration whether the Commission's solution may "become the world standard." First, this is the only solution that could be reached. Second, other "Big LEO" spectrum sharing arrangements

The record in this proceeding is crystal clear why the GSO FSS needs access to 1000 MHz of spectrum and why the GSO FSS cannot share part of that spectrum with Motorola due to the design of the Iridium system. Opening up the 29.25-29.5 GHz band to Motorola on its proposed terms would effectively reduce the size of the 1000 MHz GSO FSS allocation that the Commission has determined is required. That is precisely why the Commission rejected the first-come-first-served approach.

IV. There is No Reason to "Clarify" Motorola's Ineligibility to Use the 29.25-29.5 GHz Band

Finally, there is no reason for the Commission to issue any "clarification" with respect to its determination that "Motorola will be limited to operating its feeder links within the 29.1-29.25 GHz band since Motorola indicates it will be unable to share with GSO/FSS systems in the adjoining 29.25-29.5 GHz band."[22] In the face of its refusal to share to date, Motorola, without any support, now asks that the Commission give it the opportunity to coordinate with the GSO FSS in the 29.25-29.5 GHz band.

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were resisted initially as global solutions but have become accepted as appropriate approaches. See Communications Daily, Satellite and International (Oct. 17, 1996).

22 First Report and Order, at para. 63.

But the Commission simply has taken Motorola at its own word that it cannot share[23] in indicating the Commission's intention to limit Motorola to the 29.1-29.25 GHz band in Motorola's final authorization for feeder link frequencies. Motorola's Petition presents no new facts that indicate it can share now. There simply is no basis for letting Motorola even attempt to access a band that it consistently has said it cannot share with others.

V. TRW Clarification Request

With respect to TRW's request for clarification, Hughes does not have any issue with TRW's proposal to delete from Section 25.258(b) the words "to the GSO FSS space station." Hughes does, however, have a concern with respect to TRW's proposal to add the word "Additional" to the beginning of Section 25.258(d).[24] First, Hughes disagrees with TRW that this rule has no "direct antecedent" in the materials generated during the sharing discussions. In the handout distributed by the Commission on February 16, 1996 at the status conference that day, the Commission suggested a rule that required NGSO MSS systems applying to use the shared GSO FSS band to enter into sharing and coordination agreements that are acceptable to affected GSO FSS parties.[25] Essentially, the Commission proposed the same type of demonstration of sharing capability now required by Section 25.258.

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23 See supra note 6.

24 Section 25.258(d) reads as follows: "NGSO MSS systems applying to use the 29.25-29.5 GHz band, for feeder link earth station uplink, will have to demonstrate that their system can share with the authorized U.S. GSO/FSS systems operating in this band."

25 FCC Ex Parte Presentation, CC Docket No. 92-297 (filed Feb. 21, 1996).

Hughes is concerned that the addition of the word "additional" as proposed by TRW creates an ambiguity about to whom the rule applies -- the rule provides no indication that NGSO MSS systems do not need to make such a showing. Clearly, the GSO FSS industry has agreed that sharing with TRW is possible, even though details still need to be worked out.[26] Thus, a fair reading of this rule is that it applies only to applicants who propose to use the 29.25-29.5 GHz band for NGSO MSS feeder links *after* the date of the First Report and Order.

Hughes also has a related concern about another aspect of 25.258(b): the requirement that that NGSO MSS systems demonstrate an ability to share with authorized U.S. GSO FSS systems ***operating*** in this band. The Commission has already assigned orbital locations for GSO FSS systems in this band to a number of companies. It is the intention of everyone that these systems be protected in the NGSO FSS coordination process even though they are not yet operational. Hughes submits that the correct interpretation of this requirement is that it applies to *all* licensed U.S. systems, including those for which orbital assignments have been made, and respectfully requests that the Commission delete the word "operating" from this rule to avoid any ambiguity.

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[26] And as set forth above, this rule does not apply to Motorola because, by Motorola's own choice, Iridium ***cannot*** coordinate with the GSO FSS.

VI. Conclusion

For the reasons set forth above, the Commission should summarily deny Motorola's Petition for Reconsideration and grant TRW's Petition for Clarification to the limited extent set forth above.

Respectfully submitted,

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October 21, 1996

CERTIFICATION OF PERSON RESPONSIBLE
FOR PREPARING ENGINEERING INFORMATION

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in the foregoing Opposition and Comments of Hughes Communications Galaxy, Inc., that I am familiar with Part 25 of the Commission's Rules, that I have reviewed the foregoing Opposition and Comments, and the engineering information contained therein is complete and accurate to the best of my knowledge.

By: _____
Richard J. Leacock
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October 21, 1996

Certificate of Service

I, Susan Guzo, hereby certify that the foregoing Opposition Of Hughes Communications Galaxy, Inc. was mailed first-class on October 21, 1996 to the following:

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